

MEETING MINUTES (FINAL)

CITY OF TUCSON HABITAT CONSERVATION PLANS (HCPs)

Technical Advisory Committee (TAC)

Wednesday, February 25, 2009, 1:00 – 4:00 p.m.

U.S. Fish & Wildlife Service, Tucson Field Office

201 North Bonita Avenue, Suite 141

Tucson, Arizona 85745

ATTENDEES

City of Tucson (COT) Habitat Conservation Plans (HCPs) Technical Advisory Committee (TAC) members present:

Rich Glinski (Arizona Game and Fish Department – *retired*)

Ries Lindley (City of Tucson – Tucson Water Department)

Guy McPherson (University of Arizona – School of Natural Resources)

Trevor Hare (Coalition for Sonoran Desert Protection)

Marit Alanen (U.S. Fish and Wildlife Service)

Other Attendees present:

Jamie Brown (City of Tucson – Office of Conservation and Sustainable Development)

Leslie Liberti (City of Tucson – Office of Conservation and Sustainable Development)

Nicole Urban-Lopez (City of Tucson – Office of Conservation and Sustainable Development)

Mike Cross (Westland Resources, Inc.)

Matt Clark (Defenders of Wildlife)

1. Welcome, introductions, and ground rules

Jamie reminded the group that, per Technical Advisory Committee (TAC) member request, non-TAC members can add their comments to the discussion during the Call to the Audience.

2. Review of 12/17/08 TAC meeting minutes

Technical Advisory Committee (TAC) members approved the December 17, 2008 minutes with edits from Rich and Trevor.

3. Updates

According to Ann Audrey (City of Tucson), Jamie said that Wild at Heart is proposing to install 200 artificial Western Burrowing Owl burrows along a proposed City of Tucson (COT) linear park along Julian Wash between Kolb and Rita Road. Although this area is outside the Greater Southlands HCP planning area, the Burrowing Owl is an HCP covered species. Trevor asked if

the COT wash maintenance crews have been educated about the presence of artificial burrows. This is because some years ago, they crushed burrows along the Santa Cruz River. Leslie said that COT employees try to educate the maintenance crews, but it is difficult because of both COT staff turnover and because prison crews – the composition of which changes frequently – perform many watercourse maintenance tasks. Trevor mentioned that some of the Kino Environmental Restoration Project artificial Burrowing Owl burrows may have been vandalized. Leslie said she heard that some burrows had been vandalized but had not confirmed this.

Potential Joint HCP Mitigation with the Town of Marana

Jamie reported that the Town of Marana and the COT continue discussions of potential HCP mitigation cooperation on COT-owned lands in northern Avra Valley. Three species are under discussion, including Western Burrowing Owl, Tucson Shovel-nosed Snake (TSS), and Groundsnake. Janine Spencer (Town of Marana) is coordinating a meeting of experts on March 4th. This is to get expert input for a possible Tucson Shovel-nosed Snake research study on COT lands to learn if the species can be successfully translocated, how TSS individuals will interact with the Banded Sand Snake (*Chilomeniscus cinctus*), and other research questions. One objective of the discussion is to gather enough details to inform a draft management plan between the Town of Marana and COT based on these conversations. Jamie will keep the TAC updated on this process and the TAC will have a chance to review the draft management plan if and when it is developed.

Guy asked if there is a reason to believe that the TSS can be transplanted successfully when this strategy has never worked for any other species. Others agreed that translocations are generally unsuccessful. Jamie said that is one of the questions staff needs expert input on before conducting the study. According to Scott Richardson of the U.S. Fish and Wildlife Service, this would be a good research study and could satisfy some mitigation requirements. Leslie said it is less about the translocation and more about the mitigation to better understand the types of habitat conditions more likely to support TSS as well as the role of the competition with the Banded Sand Snake. This competition may be why TSS were extirpated from Pima County¹. This study will provide some important management information about the TSS.

Rich asked why there is competition now between species that have always existed in Pima County. Trevor said that habitat loss may be a factor that intensified competition. Marit said Phil Rosen has noticed a shift in the Marana area with lizards where there are more regal horned lizards now than desert horned lizards. He has noticed similar changes in TSS and Banded Sand Snake numbers.

Ries asked what the issues are with translocation. Trevor said one of the issues is unfamiliarity with the territory. Guy commented that if there is existing habitat, then the species would already be there.

¹ Rosen, Phil C. 2008. *2007 Survey Results for the Tucson Shovel-nosed Snake (Chionactis occipitalis klauberi), with Evidence for Ecological Change in South-Central Arizona*. Final Report to the Town of Marana.

Other Updates

Marit reported that the Cactus Ferruginous Pygmy-owl (CFPO) and TSS are still under status review by the USFWS. Rich asked if Bob Fox (Wild at Heart) has provided an update on the status of the breeding of CFPO at the facility in north Scottsdale [*Action Item: OCSD staff inquire with Wild at Heart about the status of the CFPO captive breeding*]. Trevor said if any of those CFPO get released near the Town of Marana's HCP planning area, then they disperse into Avra Valley.

Segment 3 of Avra Valley HCP

Jamie reported that the COT is working with the USFWS on the National Environmental Policy Act (NEPA) phase of Avra Valley HCP development. He said that on December 8, 2008, the Intergovernmental Agreement (IGA) between the COT and Arizona Game and Fish Department (AGFD) went into effect. Therefore, the "Segment 3" ESA Section 6 grant funds can now be used, which focus on NEPA work. The "Segment 2" work ended on December 30, 2008. Jamie said that, as opposed to beginning with development of an Environmental Impact Statement, USFWS staff recommended beginning with an Environmental Assessment (EA) for the Avra Valley HCP. According to the Federal Register (Vol. 62, No. 11, 1997):

"Actions normally requiring an EA: . . . Any habitat conservation plan that does not meet the definition of "low effect" in the Section 10(a)(1)(B) Handbook. If, for any of the above proposals, the EA determines that the proposal is a major Federal action significantly affecting the quality of the human environment, an EIS will be prepared. The determination to prepare an EIS will be made by a notice of intent in the Federal Register and by other appropriate means to notify the affected public.

Jamie said that the COT will be kicking off the public involvement phase for the EA in mid-March and will host a public scoping meeting/open house on Thursday, April 16th from 6:30 to 8:00 p.m in the Javelina Room of Ryan Air Field (9700 W. Ajo Way). The format for the open house may include a brief presentation and stations where people can learn about the different aspects of the HCP, such as the species included, the planning area, and other information. The scoping meeting is not required but it is recommended to get an understanding of public concerns and support to help inform the development of the EA. The scoping period for comments will be from March 18th through May 18th, which is approximately 60-days.

Trevor asked if the EA will be based on the 7,000 acres of disturbance over the 50-year COT Water Plan or will it be tied to the different scenarios in the Water Plan. Leslie said that the EA is not about the Water Plan; it is about the HCP itself. Trevor said an EA seems appropriate since it is a relatively small HCP.

Jamie asked TAC members who they think the stakeholders are that staff should target for scoping period and meeting outreach. Trevor suggested the local Native American tribes, Pima County, Town of Marana, the Arizona-Sonora Desert Museum, the National Park Service, the Bureau of Land Management, and perhaps those who have farming operations in Avra Valley. He said that notices could be placed in local papers, library branches, and community centers.

Marit suggested the Altar Valley Conservation Alliance. Ries said that he would ask if it is possible to include a notice in Tucson Water bills for those customers in the vicinity of the planning area.

4. Discussion:

Avra Valley HCP gaps (e.g., Issues raised during TAC review, ecological effectiveness monitoring, changed and unforeseen circumstances)

Issues raised during TAC review

Jamie reviewed the Segment 3 IGA deliverable schedule with the TAC and noted that the first two deliverables have been completed. Marit asked if the TAC will get another draft to review before the final draft Avra Valley HCP is submitted in late November. Jamie said the plan is to have a draft available by late summer to early fall for the TAC to review. Marit said there are now defined areas where impacts will occur that were not included in the last draft. Leslie said staff will reformat chapters five and seven accordingly before the next draft goes out. She added that the draft Avra Valley HCP will not be distributed at the scoping meeting because staff wants to wait until the EA is complete to finish revising the draft.

Jamie said that, based on the TAC comments he received, one of the missing pieces is that more details need to be provided on the Ecological Effectiveness Monitoring Program. Leslie suggested having subcommittees look at the Effects, Monitoring and Management, and Changed and Unforeseen Circumstances sections. The subcommittees can draft language for these sections for TAC review.

Trevor said that Pima County has done a good job with their Changed and Unforeseen Circumstances section. So, he recommended that the TAC look at this as a starting point along with the Threats and Habitat piece of their Monitoring and Management section. Jamie said that City staff has been in discussion with Pima County, but their timeline may not align with the COT's HCP timeline.

Jamie said the comments received thus far from the TAC on the May 2008 draft have been compiled into a table that he will distribute to the TAC. Trevor will send Jamie comments from the Coalition for Sonoran Desert Protection. Trevor recalled that some of the comments that CSDP will be submitting included that the mitigation ratios were good and that more information on LLNB needs to be included.

Based on his review of the comments, Jamie said that some of the bigger issues raised included incorporating additional data on Lesser Long-nosed Bat (LLNB) use of Avra Valley. Linwood submitted a question asking why the LLNB needs vegetated corridors to fly across Avra Valley and what is the appropriate vegetation. Any information AGFD can provide from their movement study will help answer these questions for this section of the HCP draft. Trevor suggested asking Dennis about vegetated corridors in urban areas versus areas with no light pollution because the light pollution may affect whether LLNB prefer to use vegetated corridors or not. Leslie said it would be good to talk to Scott Richardson (USFWS) as well because the

information about LLNB (and the Western Yellow-billed Cuckoo (WYBC) and CFPO) use of the washes came from him.

Jamie said that Rich suggested considering a 2:1 mitigation ratio for the LLNB. Jamie thinks that because the LLNB habitat is the same as the CFPO (overwintering) and WYBC habitat in Avra Valley, they should use the same mitigation ratio for all three species to maintain consistency, which is 3:1 in the current Avra Valley HCP preliminary draft. Rich said he will review his rationale for suggesting a 2:1 ratio and get back to Jamie. Jamie said that making a better case for the LLNB use of Avra Valley may help clarify the mitigation strategies for this species.

[Rich requested that COT staff insert the following comments into the 2-25-09 meeting minutes post facto]:

[Rich] “this habitat is so hard to delineate and probably not ground truthed in the field that I would be reluctant to fall on my sword for it...or to mitigate at a 3:1 ratio. I suggest 2:1 like the PTBB.”

Avra Valley HCP Lesser Long-Nosed Bat Habitat Model. *[Rich] “THIS IS WEAK! NO REAL REFERENCE FOR MODELING EXERCISE EXCEPT A PERS. COMM. FROM SCOTT. IS THERE ANY DATA??”*

The LLNB habitat model for the Avra Valley planning area is based on vegetation structure needed for foraging. According to Scott Richardson, USFWS, LLNB forage through native vegetation within riparian areas *[Rich] “What about adjacent uplands with saguaros??? If we model WYBC / riparian habitat without regard for upland foraging areas that supply nectar it seems like we have the potential of going down the wrong road here! IF we are choosing riparian habitat for model because the Avra Valley lands are essentially lowlands without an upland component, we should clearly say so.”*

A comment Jamie received from Marit is that the monitoring program needs to be more specific. Marit also submitted a comment suggesting the need to bolster the rationale for Burrowing Owl Management Areas (BOMAs) as mitigation for Burrowing Owl habitat impacts. Jamie said that the TAC decided on four BOMAs for 30 acres before he started working on the HCP. Trevor recalled a discussion about doing a range of sizes and linear BOMAs. Leslie said she recalled a discussion about allowing hacking and the TAC had decided to allow it in two of the four BOMAs.

Rich agreed that the rationale for the BOMAs needs to be clear in the HCP because he recalled that the TAC got away from the notion that the goal was to augment a breeding population. He referred to the conversations about the translocations of Burrowing Owls from the Phoenix area and that if the Santa Cruz is important for migratory and wintering owls and the presence of migratory/wintering owls indeed represents the best measure for conserving this species, putting breeding BOMAs in the area would confound what determines success in the Avra Valley HCP planning area. And, Rich said that Mike Ingraldi's (AGFD) information seemed to suggest that wintering / migrating Burrowing Owls might not use typical BOMAs. Instead, they would use

brushier areas with opportunistic holes, such as along the Santa Cruz River. Ries said that Burrowing Owls occur in brushy areas along the West Branch of the Santa Cruz River. So, Rich said that he thought the TAC was moving away from breeding BOMAs on flat land.

Marit said the proportions seem to be off unless they are permanent burrows. Ries said we should make use of the Burrowing Owls that are currently in Avra Valley instead of bringing in new Burrowing Owls. Leslie asked if the TAC's decision to use four BOMAs had anything to do with what the Town of Marana is proposing because they are using four BOMAs as well. Rich thinks that some of the confusion may stem from the different requirements between breeding habitat and migratory/wintering habitat.

Leslie suggested that the TAC focus on the Southlands HCP over the next couple of meetings because a revised draft is due at the end of July. The TAC needs to talk about Pima pineapple cactus (PPC) and the planning being done in the Southlands with the Lee Moore Wash Basin Management Study. The TAC should review how flood control measures emerging from this Study this will affect the Southlands HCP. Leslie said that the latest information she has seen suggests that "flow corridors" will be delineated to constrain the flow in areas where there is major distributary flow and no way to preserve the 100-year floodplain. Everything outside these flow corridors would have the potential to be developed. The latest information also describes preserving the 100-year floodplain in other, more defined washes but also putting limits on upland impacts outside of the flow corridors and floodplains.

In the coming weeks, Leslie said that COT-staff may have a better idea of the direction the Resource Planning Advisory Committee is recommending for the revised wash ordinance. She suggested that the TAC focus on these topics for the next few meetings and then in May the committee can shift back over to subcommittee work on the preliminary draft Avra Valley HCP. The big sections of the preliminary draft Avra Valley HCP that need work are Management and Monitoring, Effects, and Changed and Unforeseen Circumstances. These sections should be done by species. The TAC agreed to this schedule.

Ries commented that any subcommittee work should come back to the whole TAC for review before it goes out to any other groups. Leslie agreed.

Rich asked if there is a conceptual road system overlay for the Greater Southlands. Leslie said yes, the Southeast Area Arterial Study has been adopted by the COT Mayor and Council, but it is flexible. She said that one component of the Lee Moore Wash Study has been to adjust the alignments and offer recommendations, even for sections that were not considered flexible.

Ecological effectiveness monitoring

Jamie said that Pima County completed Draft 5 of their Multi-Species Conservation Plan (MSCP) in December, which includes a monitoring section. There are several species in the MSCP that overlap with the species in the COT's HCPs. Pima County's MSCP monitoring program includes both species- and habitat-based monitoring. In the first few years after Incidental Take Permit (ITP) issuance, Pima County is going to collect baseline data to develop their habitat-based monitoring. This means that they will not have a habitat-based monitoring plan developed until after their ITP is issued. Trevor confirmed that this is correct and said that,

by 2015, Pima County will have their threats and habitat monitoring plans in place. Jamie said that the Town of Marana has a mix of habitat-based and species specific monitoring. The first two years after ITP issuance, monitoring data will be collected to establish baseline conditions.

Trevor said that the Coalition for Sonoran Desert Protection is pleased with Pima County's monitoring plan as a model. He said that as long as the COT is collecting baseline data on habitats and species in the area, the permit should still be issued with a two-year window to develop the monitoring plan. Leslie said that the problem is that the COT needs to have a better understanding of the scope of the COT's proposed monitoring and management program so that costs can be accurately estimated. Before COT staff can submit the HCP, the COT Mayor and Council must approve it. She said that this will be difficult without cost estimates. And the COT can't wait five years to determine the costs.

Trevor said that he doesn't want to develop a monitoring program and then have it cut because there is no money to fund its implementation. He would like the COT to tell the TAC how much money there is for monitoring and then the TAC will determine how much monitoring can be done with those funds. Jamie said the COT is relying on the TAC to provide recommendations on the necessary components of a monitoring program, with cost-effectiveness as an important consideration. Rich said the TAC should just focus on the species and tell COT staff what needs to be done for monitoring. Trevor pointed out that mitigation, monitoring and management costs are the only costs associated with the Avra Valley HCP. Trevor asked Ries how much Tucson Water is currently spending on management. Ries said that it is not included as a line item in their budget so they don't really have any way to quantify that.

Trevor said that because they are working with such a small area, the TAC can proceed with developing a monitoring plan without a budget. However, he said that it would be nice to learn how much money Tucson Water spends on management issues and how much could potentially be included with cost of service. *[Action Item: COT staff from the Office of Conservation and Sustainable Development will meet with Tucson Water staff to get a sense of what Tucson Water is already planning in terms of management activity]*. Trevor said that Pima County includes some pretty detailed cost analysis for monitoring different species that the TAC can utilize. This will help to integrate our plans with what they are already doing. Guy agreed that the monitoring plan can be developed before the funding is determined.

Rich said there is a minimum amount of effort that has to be performed in order to gather the information needed to monitor the effectiveness of the HCP. Leslie said TAC input is very important for making a good argument about what is the minimum amount of monitoring necessary for implementation of the plan, such as what variables need to be looked at on a regular basis. Rich said there isn't a lot of scientific agreement about the best monitoring indicators for some species, so the TAC may end up recommending a series of options, such as high, medium, and low options. Trevor said he would like to see soil development monitored over the next 30 years in Avra Valley because it, along with vegetative structure in riparian areas, is important.

Jamie asked the TAC to refer to the spreadsheet he distributed. The indicators in the spreadsheet are meant to be suggestions that Jamie would like the TAC to discuss. He suggested starting with

species that use the same general habitat areas because if the TAC can agree on indicators for those species then they can move on to identifying parameters for monitoring. Jamie asked if the TAC could consider the species that use riparian areas – LLNB, WYBC, and CFPO – together in terms of identifying indicators. Trevor said he wants to wait on the LLNB until the group can get an answer from Dennis and Scott about whether they are constrained to vegetative corridors in areas without light pollution.

Cactus Ferruginous Pygmy-owl (CFPO)

In terms of possible CFPO over-wintering use of the riparian areas in Avra Valley, Jamie suggested looking at vegetation as an indicator as opposed to species based measurements. He asked the TAC whether or not they feel this indicator is sufficient. And, if so, what particular elements of the vegetation will inform trends on the quality of this habitat for this species over time. Trevor asked if the CFPO needs a burrow for over-wintering or only for breeding. Leslie said that over-wintering doesn't imply that they are in that area all season; it's just a stopover point.

Marit asked if most of the CFPO over-wintering locations are in the Important Riparian Area (IRA) of Pima County's Conservation Lands System (CLS). Leslie said the challenge is that the IRA is mapped really broadly based on historic floodplains and the Brawley Wash has largely been channelized. She is not sure why the historic floodplains were used, but there are large portions of the IRA that are degraded, former farmlands. Marit asked if there is another layer the TAC can look at. Leslie said the COT digitized the riparian habitat itself and that is what we are using for the model for these species. This was hand-digitized based on 1-foot resolution aerial orthoimagery collected by Pima Association of Governments. Leslie said that there is not a lot of upland in the HCP planning area because most of it was farmed prior to the COT's purchase of it.

Trevor asked Rich if "select" upland has more structure than the creosote flats and if it can serve as a buffer for the riparian areas. There is some good upland on the West side of Avra Valley, outside of the HCP planning area that they may start using for breeding. If they start using that area, they are going to be foraging and dispersing within the HCP planning area so we need to keep track of what is going on in that area.

Jamie said that the TAC needs to decide if they can rely on habitat-based monitoring for the riparian species and if so, what indicators are going to be adequate. Trevor said he doesn't think the composition matters as much as the structure, as long as there isn't any buffelgrass or tamarisk, but Dennis Abbate (AGFD) and Scott Richardson (USFWS) should answer these questions. Rich said the structure of the woodland habitat isn't going to change dramatically over a 10-20 year period. Thus, he recommends digitizing an area that was groundtruthed, and then ensuring that the area does not get invaded by plant species that could fuel a fire. Trevor said knowing where the buffelgrass is located is key because it flourishes during monsoon season and burns in the winter. Jamie mentioned Dennis's remark in the spreadsheet that states: "Species composition may be important to the overall ecological health of an area. However, structural composition rather than diversity may be more crucial when considering CFPO specifically." Marit suggested looking at the mapped riparian areas and groundtruthing a sample that can be updated periodically. There may need to be a more frequent survey for buffelgrass though.

Leslie said that the TAC should think about the resources that are already deployed, such as the two Tucson Water staff members that already monitor these properties. And, the TAC should identify quick and easy information they can gather with training. Trevor said another threat or stressor is groundwater pumping near the riparian areas. Ries said the groundwater levels have been increasing in this area for three decades so this isn't an issue. Trevor asked if the water table will decrease under the 50-year water plan. Ries said the groundwater level won't decrease below where it is now. Jamie said the PAG aerial orthoimagery is collected every three years, but we have to request that Avra Valley lands are included in the imagery acquisition since they were not included in 2008.

According to what the TAC said, Jamie said that it sounded like important indicators for CFPO are vegetation structure and threats (encroachment by buffelgrass and people). Jamie asked if a sample survey is necessary to monitor for these indicators. Trevor said that there should be a trigger that leads to a survey being conducted, such as augmentation during regular AGFD monitoring. Jamie asked if it would be sufficient if the vegetation structure of what exists in the HCP planning area is monitored over time to show that its integrity has been maintained. Trevor said as a baseline one also wants to capture species composition and then revisit species composition every 10 years. Jamie suggested looking at species composition if there is another species that shares the same habitat and species composition is an important indicator. Leslie said mapping the areal extent of the habitat is also important. Trevor said that human encroachment can be monitored by inspecting fence lines and looking for signs of ATV use. Habitat structure and extent, and connectivity were identified as important because the group is looking at movement corridors. Rich said that with augmentation there is going to be a lot of movement, so dispersal should also be included. Trevor suggested including barriers to connectivity. Jamie said that one possible way of monitoring this would be by comparing the Geographic Information System (GIS) road layers over time in terms of road density, size class, or other attributes.

Leslie said that the TAC should make a distinction between what can and cannot be controlled. Jamie suggested looking at changed circumstances, such as collecting climate data to see how the habitat is being affected over time by possible climatic shifts. Leslie agreed that we should collect climate data. Ries suggested talking to Dick Thompson about where the COT's weather stations are located in Avra Valley.

Trevor said localized data is extremely important along with soil development monitoring if the lands are going to return to a more natural state. Converting to a more natural state will help with conservation of the two snake species and the Burrowing Owl. Leslie asked if these are elements of management and monitoring or of a restoration component. Leslie said that Phil Rosen has indicated that the amount of damage to many of these properties may preclude it from being restored with any certainty. Guy said he could not imagine that there would be a measurable change in the soil in this century. There may be some minor changes in the texture over 50-100 years, but not any horizonation.

Leslie said that the potential opportunity is that if we can be economical in the monitoring; more resources can be diverted to managing the lands that are not currently considered habitat to bring them up to a compatible state for species.

Western Yellow-billed Cuckoo (WYBC)

Trevor said that the most important places that influence the Avra Valley HCP planning area are the Santa Cruz River south of the Avra Valley HCP planning area. He asked where WYBC are going when they disperse in the area. Leslie said they could be going to the Altar Valley. Leslie said that Brian Wooldridge (USFWS) was surprised by how much WYBC are using mesquite bosques. Trevor said that we need to know what is going on when WYBC arrive south of the Avra Valley HCP planning area in Arivaca Creek, Arivaca Lake, Pena Blanca Lake, and the Santa Cruz River south of Tucson. Surveys should be conducted at the Simpson Farm and structure, extent, and connectivity should be looked at for everything in the middle.

Although important for other purposes, Jamie wondered if the surveys at the Simpson Farm would inform trends about the COT's ecological effectiveness in the HCP planning area. Marit asked if WYBC are not detectable during dispersal. Leslie said that we know they are in the area because there were detections from Tucson Audubon Society's bird surveys at the Simpson Farm. Jamie asked hypothetically if, after ITP issuance, the COT does everything correctly to protect and maintain the WYBC habitat, but after a few years no WYBC breeding is documented to occur, does this mean that the COT should change management for this species? Rich said we need to keep a thumb on the pulse of the WYBC's population in Arivaca and other nearby areas. Trevor reminded the group that the biological objectives are not to increase the population of the WYBC in Arizona; they are to provide habitat for dispersal and possible breeding habitat, and minimize direct mortality. Thus, we don't have to monitor for population trends because our focus is to monitor for dispersal habitat. Guy said monitoring where the WYBC are located around the HCP planning area feeds into our objectives. This is because if we provide for dispersal and possible breeding habitat, then we have met our objectives. But, if we don't provide for this then we might become the limiting factor depending on what happens in these other areas in terms of breeding populations.

Jamie asked how we would measure habitat for the WYBC. Rich and Trevor said we should measure habitat for the WYBC in the same way that we would measure habitat for the CFPO. Rich said there aren't any structural differences because, during dispersal, they just move through the woodland. Guy said an additional threat is the existence and/or encroachment of tamarisk. Trevor said this would be a threat to the CFPO as well. Obtaining baseline data about what is out there will help determine if it is a threat. Jamie asked how invasives should be measured. Trevor said they should be mapped on the ground.

Jamie said that he thinks that the current buffelgrass maps for COT Avra Valley properties were developed by visiting known patches, recording locations with a GPS unit, and then digitizing polygons around those sites. He asked if this type of mapping is sufficient for monitoring invasives as a threat, or if sampling over time needs to be conducted. Marit said buffelgrass does not have a good spectral signature for remote sensing detection. This is because it can be difficult to distinguish from other grasses if it is not green.

Leslie said the cheapest way per acre to eradicate buffelgrass may be through aerial spraying. Ries said that when the non-native invasive species get into native habitat, smaller equipment is necessary to eradicate it, which costs much more per acre. Rich wondered what the extent of buffelgrass is once it gets close to the shaded woodland areas and whether or not it requires full sun to grow. Rich continued saying that if the buffelgrass brings a fire to the woodland, the red brome and London rocket would fuel it into the area. The invasives wouldn't replace the woodland, but they could be a threat by spreading fire into the area and destroying the mesquite. Rich said that he doesn't think buffelgrass is in the woodland, but red brome and London rocket are.

Leslie said buffelgrass is a significant issue and needs to be addressed. However, discussions over the past months have shifted from how to eradicate it to how to bank species for restoration once better eradication methods are found. This is because the buffelgrass invasion is beyond the point where the plant can be eradicated before there is a crisis. Rich said that if we have identified areas of important woodland habitat, we need to establish fire breaks in those areas so the invasives don't push the fire into the habitat. One management strategy may be to have a grazer keep the invasives at a low level so it does not spread fires. In some years there may need to be removal. One thought is to map and monitor the extent of buffelgrass within 100-200 meters of important woodland habitat.

Guy said that buffelgrass was mapped along roads because that is where the early mapping was completed. He said that he thinks there are substantial stands outside the right of way. Ries said that one can follow the extent of buffelgrass along the roadways in any direction, and then one has to see how far into the interior it has spread. This is because spreading out from the roadways is a slower process. Jamie reminded the group that although they are dealing with 20,000 acres of land, not all of the area is habitat for any of the covered species. Jamie said that if invasive species are important, then the TAC may need to develop a sampling design for detecting them. Currently, this cannot be done with the technologies for aerial orthoimagery at this scale, so another method will have to be used, such as sampling plots within the habitat.

Jamie said that although buffelgrass may not be a direct threat in woodland habitat, it may be a threat to other species' habitat, such as TSS and Groundsnake, so a systematic method to detect and measure invasive species in the area may be necessary. Then, management strategies can be implemented if invasive species are detected. Leslie agreed that the indicators for what we are measuring in terms of invasives are important to establish first, before the management strategies are developed. Guy said the indicators for red brome and Mediterranean grass are driven by the weather. If there are rainy winters, then they will be prevalent. Rich agreed and said red brome is an annual and if there are two years of moisture during the cold season, then it is going to be present. Guy said there is no need to monitor red broom or Mediterranean grass, you just monitor the weather. Leslie asked how Harold mapped the extent of buffelgrass in the area. Ries said he didn't know but staff could provide the details about this. Marit agreed with the approaches being discussed.

Trevor said that in terms of structure, the species that constitute the structure won't change over the term of the HCP and so the trend may be in the threats. Jamie said the trend may be "no change" because they are trying to maintain what is already there. Trevor said they may not want

to spend any money trying to quantify a trend of “no change” in an area. Leslie said that if the changes will be too slow to identify during the HCP period, a proxy such as photo monitoring could be done instead of using statistically based survey protocols.

Rich said that with regard to the CFPO and the WYBC, once the structure is identified as woodland, it is unnecessary to continue monitoring it because it should remain the same. Management should be conducted to protect it from fire. Trevor said that mesquite bosques may diminish if climate change predictions hold true. Guy said catastrophic freezes also have to be considered. Marit said one of the management triggers could be these catastrophic events. Leslie said she likes this approach because it gets at the variables that most influence the quality of the habitat. The key is going to be determining the thresholds and how they interact with each other.

Jamie asked for clarification about the threat of tamarisk. Trevor said it has a different structure so the branches are flimsy and are only good for perching. He said that they also change the prey base for WYBC as well. Leslie asked it is the same issue with WYBC dispersal as it is for breeding habitat. Trevor said yes, they still need a place to perch and glean. Rich said that he didn't think it would replace woodland habitat.

As time allows, Jamie said that the TAC may continue the monitoring discussion at upcoming TAC meetings and then the subcommittees can continue additional work. Leslie agreed and said the committee also needs to discuss elements of the Greater Southlands HCP such as Pima Pineapple Cactus, the Lee Moore Wash Basin Management Study, any Arizona State Land Department planning efforts (ASLD), and others.

[Action Item: Jamie will invite Bill Zimmerman (Pima County) and David Jacobs (ASLD) to attend an upcoming TAC meeting and provide, respectively, updates on the Lee Moore study and ASLD planning.]

5. Upcoming meetings

The TAC agreed to cancel the March 11th meeting and schedule the next two meetings for April 1 and April 29.

6. Call to the audience

Mike Cross said that AGFD is completing a study on the LLNB and he will try to send the information to Trevor. Mike also said that he has a lot of experience with the CFPO and, based on this, he said that they don't overwinter anywhere; they stay in their breeding habitat all year. Leslie said her recollection is that Dennis Abbate wanted the habitat description to read “dispersal/overwintering” to recognize that dispersal doesn't mean it stops for a few minutes and then leaves. Instead, it means that they may hang around for a while before moving on. Mike said that tamarisk is valuable for some flycatchers and, therefore, there may be resistance to tamarisk eradication.

With regard to monitoring the structure or composition of habitat for the CFPO and the extent of connectivity, Matt Clark said that Aaron Flesch's work may be useful for detecting CFPO responses to roadways in open areas in terms of movement at dispersal. Matt said that the U.S. Geological Survey recently conducted a study along the Colorado River on the WYBC. This study may not be published yet, but at a presentation about the study, he learned that mesquite bosque may be playing a significant role in terms of hunting ground.

7. Adjournment

The meeting was adjourned at 4:00 p.m.

Summary of Action Items:

- OCSD staff inquire with Wild at Heart about the status of the CFPO captive breeding
- COT staff from the Office of Conservation and Sustainable Development will meet with Tucson Water staff to get a sense of what Tucson Water is already planning in terms of management activity
- Jamie will invite Bill Zimmerman (Pima County) and David Jacobs (ASLD) to attend an upcoming TAC meeting and provide, respectively, updates on the Lee Moore study and ASLD planning